Appendix V.1
Best Management Practices Checklist for Project Grantees

April 4, 2011

Introduction

The Conservancy and its partners can incorporate procedures and practices into their projects that reduce Greenhouse Gas (GHG) emissions through energy and water conservation, waste reduction, and materials selection. The Conservancy's role as an educator can also help reduce emissions beyond the scope of its funded projects.

The physical work of many Conservancy projects can be broadly classified as construction, as it usually includes the following: the building or maintenance of trails; the building or improvement of structures such as learning centers; the building or improvement of public access and recreational facilities such as parking areas and access roads; the removal of dams or other fish barriers in streams; the removal of invasive species; and the restoration of habitat which can include the moving of rock and soil to/from the project area. The Best Management Practices (BMPs) listed in this checklist largely focus on these activities as they offer significant opportunities for reducing GHG emissions through energy conservation both upstream and downstream of the project. Additional measures are included that support education about emissions and opportunities to reduce vehicle miles traveled (VMT). Specific water conservation BMPs are also included, although the absolute GHG reductions achieved from water conservation can be small when compared with other sectors such as transportation or waste.

Using the BMP Checklists

The checklist included here should be consulted early in project development, as described in the Guidance document regarding the Conservancy Project GHG Impact Assessment and Mitigation Process (Step 2). This checklist is based on the differing roles of the Conservancy and project grantees during project design and implementation; depending on the Conservancy's role in a particular project, additional BMPs on the project grantee checklist may also apply to Conservancy actions.

It is not intended, and likely not possible, for all projects to adhere to all of the BMPs listed below. Rather, these BMPs provide a portfolio of options from which a project lead could chose the most appropriate, taking into consideration cost, environmental or economic co-benefits, schedule, and other project-specific requirements. To assist with the prioritization of the BMPs, those with a high potential to effect GHG reductions have been marked with an asterisk.

The Conservancy works primarily in partnership with local governments, public agencies, non-profit organizations, and private landowners to achieve its mission. As a result, the Conservancy will work with its partners in evaluating the GHG reduction benefit of these measures against the associated costs of implementing them.

About the Best Management Practices

These BMPs were developed using the following major sources, in addition to the sources listed throughout the document and in the References section: U.S. Environmental Protection Agency's Recommendations for Environmental Best Practices in Federally Funded Projects, the California Attorney General's *Recommendations for Best Practices to Reduce GHG Emissions at the Project Level*,[1] California Energy Commission recommendations, the U.S. Department of Energy, and the U.S. Green Building Council. The BMPs are applicable to Conservancy construction and restoration projects, addressed in the following categories:

1. Pre-Project Planning and Project Criteria
2. Construction Activities and Structures
3. Transportation Management
4. Education and Outreach
5. Water Conservation

The measures included in the checklists are those that are widely accepted in the sources above as standard BMPs, at the time of development of this checklist. These BMPs include the maximum flexibility possible to ensure relevancy in light of future standards or requirements. However, given the rapidly changing regulatory and technology context in California, the Conservancy will revisit the BMPs on a regular basis to ensure they remain current, effective, and proactive.

Over time, the Conservancy expects additional metrics will be developed to assess the effectiveness of these types of BMPs. These metrics will assist projects leads in prioritizing the BMPs for a particular project, without conducting extensive analysis. Given the diversity of the Conservancy's projects, the development of standard metrics that would address all types of Conservancy projects is needed. Any information a grant partner may gain, and be able to make available to the Conservancy, about the effectiveness of the BMPs they have implemented, will be very helpful in refining and improving this list for future grantees and projects.

[1] California Office of the Attorney General. 2010. Addressing Climate Change at the Project Level. Available at http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf. Accessed August 16, 2010. Last updated January 6, 2010.

Best Management Practices Checklist for Project Grantees

1. Pre-Project Planning and Project Selection Criteria

Goal: These measures promote awareness of the GHG emissions associated with projects and provide criteria by which projects can be evaluated. The Coastal Conservancy Climate Change Policy stipulates that the Executive Officer shall consider climate change in recommending projects for funding. The following measures provide specific metrics associated with GHG emission mitigation that can be used in that evaluation.

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
1.1:	Where applicable, document measures, project design elements, or other project attributes that promote energy conservation, water conservation, waste reduction, VMT minimization, and other sustainable practices to identify aspects of a project that may reduce GHG emissions. For example, for projects where buildings will be constructed, document the use of energy conserving lighting, appliances, and building materials. If applicants have developed a VMT reduction plan, this should also be described in staff's recommendations. Provide training to appropriately assess a project's energy conservation and GHG reducing attributes (Refer to BMP 4.2). Such documentation should complement and may augment that needed for making CEQA findings for projects.	☐	☐	☐
1.2:	Include an educational component that describes how project-related GHG emissions and GHG reduction measures will be presented in materials viewed by the public. Conservancy staff will work with grantees to provide such information and utilize educational strategies related to GHG emissions.	☐	☐	☐
1.3:	Encourage programs that provide for innovative solutions to increasing density and preserving open space near urban areas, or improve land management techniques in ways that reduce net GHG emissions. This includes preservation of agricultural lands, increasing open space areas that create wildlife corridors, and linkages for wildlife migration and adaption.[1] Improved land management may include techniques or programs that increase carbon sequestration, or that reduce existing land-based emissions.	☐	☐	☐

2. Construction Activities and Structures

Goal: These measures reduce GHG emissions associated with energy consumption by buildings or structures erected with Conservancy funds and the energy used to manufacture and transport materials used in Conservancy funded projects. These measures also reduce GHG emissions by lowering fuel consumed by equipment during construction and by managing the amount of project-related waste that is ultimately deposited in landfills. Solid waste, when it decomposes in the anaerobic conditions of a landfill, releases methane (CH_4), a greenhouse gas twenty-one times more powerful than carbon dioxide (CO_2). The GHG benefits of diverting materials from landfills are significant as waste from new construction, demolition, and renovation currently comprises nearly 25 percent of total U.S. waste.[2]

Best Management Practice (* = High potential for GHG reductions)		**Included in Project:**		
		Yes	**No**	**N/A**
Fuel Conservation				
2.1: Incorporate the use of low carbon fuels and alternative fuel technologies in construction equipment and vehicles. To the extent feasible, and where applicable, proponents work with contractors who select fuels with a lower carbon intensity than standard gasoline or diesel.[3,4] These could include electricity, bio-fuels, natural gas or blended fuels, whenever lifecyle and sustainability concerns have been addressed.[5]. Include these specifications in construction bid specifications. Address the use of the low carbon fuels and alternative fuel technologies in the selection of construction contractors.	*	☐	☐	☐
2.2: To the extent possible, give preference to contractors that maximize fuel efficiency by using engines on off-road construction equipment that are no more than 10 years old or have equivalent carbon dioxide emissions of an engine 10 years old or newer.		☐	☐	☐

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
2.3: Include a VMT reduction plan for the project and demonstrate that the plan can minimize overall VMT to project site, including minimizing the distance for truck haul trips. Personal vehicle VMTs should ideally be reduced by 50%[6] and construction vehicle VMTs by 15%. This may be accomplished by incentive programs for contractors or by placing staging areas for materials in close proximity to the construction site and choosing materials (e.g. sediment for grading projects) from quarries or vendors as close to a project site as practicable. While potential sites for materials staging areas may be limited at a project location, equal consideration should be given to the resulting VMT as to other selection criteria. This could also be accomplished through careful planning of truck trips such that VMTs are maximized for project utility. These measures can be considered as part of a project's overall VMT reduction strategy.	*	☐	☐	☐
2.4: Reduce unnecessary idling through the use of auxiliary power units, electric equipment, and strict enforcement of idling and speed limits. [*Note to staff: If this BMP is used, include language in plans and specifications for construction contracts.*]		☐	☐	☐
2.5: Through contract language or other means, encourage good engine maintenance to meet manufacturer standards, and properly train operators to run equipment efficiently. [*Note to staff: If this BMP is used, include language in plans & specs for construction contracts.*]		☐	☐	☐
2.6: Encourage engine electrification for off-road vehicles or ships and other equipment used by grantees or contractors. In general, the carbon intensity of California grid-power is less than that of diesel or gasoline on a per (thermal) energy unit basis. In 2008, electricity provided by PG&E[7] had a carbon intensity of 60 kg CO_2/MMBtus. Gasoline and diesel transportation fuels have carbon intensities of 71 kg CO_2/MMBtus and 73 kg CO_2/MMBtus respectively. The carbon intensity of electricity in California fluctuates from year to year, dependent on a variety of factors so the choice of electric power over standard diesel and gasoline fuels should continually be evaluated.[8,9] Due to adoption of The Renewable Portfolio Standard (RPS) (SB 1078/SB 107), the carbon intensity of California electricity is expected to decline even further in coming decades.	*	☐	☐	☐
2.7: Reduce by 50% worker-related VMT to restoration or construction projects through use of carpool, vanpool, or shuttle service from a single central location to the work-site.		☐	☐	☐

Best Management Practice (* = High potential for GHG reductions)	Included in Project: Yes	No	N/A
Construction and Debris Waste Practices			
2.8: Include a construction and demolition (C&D) plan that will result in at least 50 percent diversion of C&D waste[10,11] through reuse or recycling of non-hazardous construction waste from disposal (including, but not limited to, concrete, lumber, metal, and cardboard). Waste due to new construction, renovation and demolition currently accounts for about 12 percent of California's land-filled waste, compared to 25 percent nationwide.[12] The California Integrated Waste Management Board (CIWMB) estimates that California landfills receive over 4 million tons of C&D waste each year. In general, waste diversion rates have risen dramatically since the early 1980s—the U.S. achieved 46 percent diversion in 2008[13] and California achieved 58 percent diversion in 2007—however the bulk of this diverted material is residential and commercial waste. On average, only between 20 and 30 percent of construction waste is diverted. The CIWMB maintains a list of resources for C&D waste including videos, fact sheets and tool-kits for architects, builders, local governments and C&D processors.[14,15] [*Note to Staff: Include the plans in specifications and construction documents.*]	☐	☐	☐
2.9: In lieu of burning or landfill disposal, compostable waste resulting from habitat restoration or invasive species removal is composted onsite, if feasible, or at the nearest facility.	☐	☐	☐
2.10: Building or construction materials that are not recyclable or re-usable for another project are hauled to the nearest waste disposal facility or C&D recycling facility rather than transporting such materials farther from the project site, thereby generating increased emissions from waste transportation. While this may not always be possible due to other factors such as cost, efforts to reduce waste-hauling VMT should be incorporated into project plans where feasible.	☐	☐	☐

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
Structure Design Options				
2.11: Design of applicable structures erected as part of Conservancy projects exceeds the current Title 24[16] energy efficiency standards by a minimum of 15 percent where feasible. This can be accomplished through a portfolio of design options selected on a project by project basis. Resources for identifying and selecting the most appropriate building design options for minimizing energy consumption are available through the California Buildings Standards Commission (Green Buildings Standards), the U.S. Department of Energy (Building Technologies Program), the U.S. Green Building Council Leadership in Energy and Environmental Design Program or other resources as appropriate.[17]	*	☐	☐	☐
2.12: For new Conservancy funded structures or for improvements to existing structures or facilities, Energy Star qualified lighting products are to be installed for indoor and outdoor lighting. Energy Star qualified lighting can use up to 75 percent less energy than standard lighting.	*	☐	☐	☐
2.13: Promote energy efficiency in all structures by requiring that they be sited, oriented, and designed to optimize conditions for natural heating, cooling, and day lighting of interior spaces, and to maximize winter sun exposure.	*	☐	☐	☐
2.14: Promote renewable energy by using on site renewable power (e.g. solar, wind or other), wherever practicable. For single installation, on-site, renewable power, solar is currently the preferred option for cost, power generation and general feasibility. However, technological developments and unique site considerations (e.g. wind resources, proximity to geothermal or tidal power sources, limited solar generating capacity) may make other renewable power sources preferable in the future. The Conservancy will continue to evaluate all options for increasing their use of renewable power.		☐	☐	☐
2.15: Heating and cooling optimization shall be required through building design to minimize the need for mechanical cooling and heating. This may include design options that optimize shading or airflow through a building or passive heating and cooling strategies.	*	☐	☐	☐
2.16: Hot water in facilities is heated with solar hot water heaters wherever practicable.	*	☐	☐	☐

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
Materials				
2.17: Give preference to sustainable and environmentally friendly building materials, including, but not limited to, materials with high post-consumer recycled content. In selecting or defining environmentally friendly building materials numerous aspects of the material's life cycle can be considered such as: water resources, criteria pollutant emissions, waste generation, production impacts on wildlife or natural landscapes and associated VMTs. Due to the complexity in assessing all of these factors and the demand for decision support related to "green" building, the availability of resources has increased in recent years. The U.S. EPA has recently completed a comprehensive Study entitled, "Sustainable Materials Management- the Road Ahead". As part of this effort, numerous materials including purchasing guides and a materials ranking are available[18,19,20] through the EPA. Additional resources and information are available through the California Integrated Waste Management Board, the National Institute for Building Sciences and the California Green building Council.[21]		☐	☐	☐
2.18: Give preference to building materials, restoration materials, trail maintenance materials and products (i.e., gravel, dirt, cement, rocks) that are locally or regionally extracted and manufactured. By selecting local suppliers, contractors can minimize VMT required for hauling. However, the GHG benefit of a local supplier could be negated by a production process that is GHG intensive. To the extent possible, project proponents should weigh the entire life cycle of a material when assessing GHG benefits. If embodied emissions from production are similar, a local supplied material is preferred.		☐	☐	☐
2.19: Roofing design achieves maximum energy efficiency for the building. Roofing materials should be chosen to be of light color, with roof material exceeding the reflectivity requirements of Title 24 [22] (i.e., material shall have an initial thermal emittance greater than or equal to 0.75 when tested in accordance to Title 24 protocols). Because these "cool roofs" save both energy and money, performance standards for their installation have been included in Title 24, the California's Building Energy Efficiency Standards. Title 24, Section 10-113 provides specifications for liquid coatings, insulation, labeling and building envelope requirements.	*	☐	☐	☐
2.20: Choose paving materials to be light in color to reduce near surface temperatures and increase nighttime visibility.		☐	☐	☐

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
2.21: Encourage the use of low energy intensity roadway paving or surface materials such as recycled crushed concrete and asphalt, permeable concrete block pavers, high coal combustion byproducts (CCP) content concrete, warm mix asphalt or other paving materials. Concrete production requires large amounts of energy and generates significant waste. The incorporation of recycled industrial by-products such as fly ash, bottom ash, boiler slag, and desulfurization gypsum can greatly reduce the energy intensity of the raw material.[23,24] The production and application of asphalt also require large amounts of energy, however the use of "warm mix" asphalt, a generic term for asphalt processing at 50-100ºF lower temperature, can greatly reduce the energy requirements.[25,26] For areas that do not require hard paved surfaces such as parking lots, opt for native plant ground cover.	*	☐	☐	☐
2.22: Encourage the use of low energy intensity concrete for non-supporting structures, where applicable such as curbs, sidewalks, ramps, drainage ditches, pylons, and benches. Concrete production requires large amounts of energy and generates significant waste. The incorporation of recycled industrial by-products such as fly ash, bottom ash, boiler slag, and desulfurization gypsum can greatly reduce the energy intensity of the raw material.[27]		☐	☐	☐
2.23: Implement low impact development measures as proposed by the OPR. Resources for the OPR's proposed measures are available at the following locations: http://www.opr.ca.gov/ceqa/pdfs/Technical_Advisory_LID.pdf http://www.opr.ca.gov/planning/docs/State_Agency_Technical_Resources_for_General_Plans.pdf		☐	☐	☐

3. Transportation Management

Goal: These measures act to reduce GHG emissions by reducing VMT of visitors to and from project sites. Project proponents should consider the impact of transportation BMPs both at the project site and through measures that can be effectively made in bicycle and pedestrian infrastructure surrounding the project site. Sometimes a small investment made offsite can significantly reduce VMT associated with the project (such as increasing the accessibility of the project by improving a transit connection elsewhere).

Best Management Practice (* = High potential for GHG reductions)		**Included in Project:**		
		Yes	**No**	**N/A**
3.1:	Projects located within an area serviced by public transportation incorporate an actionable plan for linking with the local service system.	☐	☐	☐
3.2:	Establish or expand, where possible: 1) bicycle parking and/or locking facilities, 2) bicycle lanes, 3) promotion/advertisement of bike accessibility 3) transit access. Bicycle parking should be secure and sheltered and where possible meet the Association of Bicycle and Pedestrian Professional's Bicycle Parking Guidelines (www.apbp.org).	☐	☐	☐
3.3:	Conduct a 'Pedestrian and Bicycle Safety Audit' for routes that lead to and from the project site in order to identify wider-area improvements that can lead to VMT reductions.[28]	☐	☐	☐
3.4:	Reduce the need for visitors to drive to regionally significant parks and trails by adding connections between existing trail networks and the coast or from existing transit centers.	☐	☐	☐
3.5:	For projects that utilize volunteers such as clean-ups or invasive species removals or restorations, provide mechanisms for volunteers to reduce VMT through carpools, in-kind transit fares, or bicycle groups.	☐	☐	☐

4. Education and Outreach

Goal: These measures contribute to GHG reductions through public education of climate change issues and by promoting behaviors that reduce GHG emissions. Several of these measures serve to inform the public of the Conservancy (or its partners') specific actions taken at the project site to reduce GHG emissions from the project.

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
4.1:	Where applicable, quantify construction emissions (using URBEMIS, EMFAC and other standard tools[29]) and display or otherwise convey (e.g. websites, fact sheets) the total GHG emissions with educational materials related to the project.	☐	☐	☐
4.2:	For projects that result in significant net carbon sequestration, include the carbon sequestration benefits as part of publicly available educational materials about the project.	☐	☐	☐
4.3:	In sign postings or other educational materials, include a description of the best practices in place for GHG reduction during the construction, restoration, or maintenance phase of a project.	☐	☐	☐
4.4:	For completed structures/construction projects that have incorporated practices to reduce energy, water, waste, or fuel consumption and associated GHG emissions, include a description of the actions, materials, renewable power generation, etc., that have been pursued in project design and construction.	☐	☐	☐
4.5:	Develop specific education and outreach materials focused on utilizing available bicycle and pedestrian routes to facilities, as well as existing public transit connections.	☐	☐	☐
4.6:	Develop specific education and outreach materials focused on water conservation that describe the water conservation measures undertaken as part of a specific Conservancy-funded project.	☐	☐	☐

5. Water Conservation

Goal: These measures will act to reduce energy consumption (and resulting GHG emissions) associated with water transport, treatment, and delivery by limiting project-related water consumption. Additionally, these measures act to further conserve water resources through the protection of local ground water resources and preparation for climate change impacts on California's coastal resources. Not all of the BMPs in this sub-section may result in significant GHG reductions.

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
5.1: Develop a water management strategy for proposed projects that involve significant ongoing water use (either as part of the grant application process or as a condition of project implementation).[30] Management plans should at a minimum require installation or upgrade of current water metering in existing buildings. Accurate monitoring is the first and a crucial step to developing an effective water management strategy. Water management strategies could include but not be limited to many of the individual measures below.	*	☐	☐	☐
Structures				
5.2: Replace older faucets, toilets, urinals and shower heads with fixtures meeting the EPA's Water Sense standard.[31] For new buildings, require that faucets, toilets, urinals and shower heads meet the EPA's Water Sense standard. The Water Sense label was developed by EPA, similar to the Energy Star rating, to promote water efficiency and enhance the market for water efficient products. Products that meet the EPA's water efficiency criteria are allowed to bear the Water Sense label.		☐	☐	☐
5.3: Inventory potential non-potable water sources near project areas. Determine which project water needs could be met with recycled water. The use of recycled water for appropriate uses can greatly reduce the demand on the potable water supply.[32] Recycled water has been used successfully in habitat restoration projects.[33]		☐	☐	☐
5.4: Where practicable, install water recovery systems such that greywater can be used on-site,[34] per governing rules and regulations that apply to greywater system installation.[35]		☐	☐	☐
5.5: Encourage contractors to use pervious concrete[36] for paved surfaces. Pervious pavement can promote groundwater recharge and reduce storm water run-off.		☐	☐	☐

Best Management Practice (* = High potential for GHG reductions)		Included in Project: Yes	No	N/A
Restoration Projects and Regional Water Resource Conservation				
5.6:	Develop a water metering or water use estimation protocol for restoration projects or other projects requiring continual or frequent irrigation.	☐	☐	☐
5.7:	Produce an evaluation of the potential to use recycled water for restoration projects and irrigated agricultural lands purchased or preserved by the Conservancy.	☐	☐	☐

Endnotes

[1] Assessment of Greenhouse Gas Mitigation in California Agricultural Soils. 2009b. CEC-500-2008-039. Available at http://www.energy.ca.gov/2008publications/CEC-500-2008-039/CEC-500-2008-039.PDF. Accessed February 16, 2010.

[2] U.S. Environmental Protection Agency. 2009. *Potential for Reducing Greenhouse Gas Emissions in the Construction Sector*. Sector Strategies- Peter Truitt, Construction Lead. Available at: http://www.epa.gov/ispd/pdf/construction-sector-report.pdf. Accessed December 29, 2009.

[3] While low carbon fuels that can readily substitute for gasoline or diesel are not widely available in California in 2009, they are expected to be increasingly so over the next decade. A recent study performed by the University of California Davis Institute for Transportation Studies estimates that the State will be able to meet the LCFS standard by 2020 and that much of this fuel can be produced within California. The study considered the following low carbon fuel sources in assessing the feasibility of the LCFS: 1) biomass-derived fuels, 2) natural gas, 3) petroleum and fossil fuel substitutes, 4) electricity, and 5) hydrogen. Many of the first low carbon fuels that are expected to be widely available are biofuels or biofuel blends. The EPA estimates nationwide production of low carbon biofuels to reach 2.7 billion gallons by 2012.

[4] Institute of Transportation Studies – University of California Davis. 2007. *A Low Carbon Fuel Standard for California Part 1: Technical Analysis*. Project Leads: Alexander Farrell and Daniel Sperling. Available at http://pubs.its.ucdavis.edu/publication_detail.php?id=1082. Accessed December 29, 2009.

[5] Not all biofuels are the same: there is a wide range in the estimated heat-trapping emissions and other environmental impacts from each biofuel over its life cycle, depending on the feedstock, production process, and model inputs and assumptions. There are also concerns about emissions and impacts from land conversion and land use associated with biofuel production. Union of Concerned Scientists, available at: http://www.ucsusa.org/clean_vehicles/technologies_and_fuels/biofuels/biofuels-an-important-part.html. Accessed March 21, 2011.

[6] All proposed reductions are in comparison to a "business-as-usual" scenario, in other words, in relation to the most likely scenario should no efforts to incorporate reductions occur.

[7] PG&E GHG data requests service, personal communication, e-mail. Margaret Williams, September 2009.

[8] California energy providers report their annual GHG emissions and electricity sales through the California Climate Action Registry. This information is publicly available at http://www.climateregistry.org/.

[9] The carbon intensity of California electricity is considerably lower than other regions of the U.S. because California does not rely heavily on coal to generate electricity. Over the past 10 years, coal fired power plants have supplied less than 2 percent of the power generated within California's borders. Coal fired power purchased from out of state composes between 7-25 percent of the yearly power mix. In years when California demand can largely be met with California generated power, the carbon intensity of CA-grid electricity is low. In years when more power is purchased from other sources, the carbon intensity is higher. The RPS sets forth a goal that 33 percent of electricity sold to California consumers will be generated from renewable resources.

[10] 50 percent is the minimum C&D diversion for U.S. Green Building Council LEED credits.

[11] The California Department of General Services (DGS) has recently implemented a 50 percent C&D diversion requirement for all projects it oversees.

[12] CIWMB. 2009. *Construction and Demolition (C&D) Waste Diversion in California.* Available at: http://www.ciwmb.ca.gov/ConDemo/Pubs.htm#Case. Accessed December 29, 2009.

[13] U.S. Environmental Protection Agency. 2009. *Municipal Solid Waste Generation, Recycling and Disposal in the United States: Facts and Figures for 2008.* Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw2008rpt.pdf. Accessed December 29, 2009.

[14] Resources available at: http://www.ciwmb.ca.gov/ConDemo/

[15] The CIWMB currently estimates over 400 C&D recyclers operate in California and CIWMB can assist with location of a local C&D recycler. http://www.ciwmb.ca.gov/ConDemo/Recyclers/RecyclerSearch.aspx.

[16] California's Energy Efficiency Standards for Residential and Non-Residential Buildings, Title 24 Part 6 of the California Code of Regulations. The Title 24 Code includes instructions for energy savings calculations and is available at http://www.energy.ca.gov/title24/. This standard represents the minimum level of energy

efficiency that should be achieved by new construction in California. These standards are updated every 3 years, so the term "current" reflects the standards in place at the time of award Conservancy funds.

[17] The California Buildings Standards Commission Green Building Standards available at http://www.bsc.ca.gov/CALGreen/default.htm. The Department of Energy Building America Best Practices and Case Studies available at http://www1.eere.energy.gov/buildings/building_america/publications.html. USGBC LEED Resources available at http://www.usgbc.org/DisplayPage.aspx?CategoryID=20.

[18] U.S. EPA's Sustainable Materials Management- the Road Ahead. 2009. Available at http://www.epa.gov/osw/inforesources/pubs/vision.htm.

[19] U.S. EPA's Environmentally Preferable Purchasing Guide. Available at http://www.epa.gov/oppt/epp/. U.S. EPA's Waste-Resources Conservation- Comprehensive Procurement Guidelines. Available at http://www.epa.gov/epawaste/conserve/tools/cpg/index.htm.

[20] California Department of General Services. 2009. *Acquiring Environmentally Preferable Products and Finding Existing Environmentally Friendly Products.* Available at http://www.green.ca.gov/EPP/Introduction/FindExist.htm. Accessed February 16, 2010.

[21] Resources and information available at: The California Integrated Waste Management Board: http://www.ciwmb.ca.gov/greenBuilding/. The National Institute of Building Sciences http://www.wbdg.org/resources/greenproducts.php?r=env_preferable_products. USGBC Northern California: http://www.usgbc-ncc.org/index.php?option=com_content&task=view&id=174&Itemid=248. Green California. http://www.green.ca.gov/default.htm.

[22] Resources and information available through The California Energy Commission. http://www.energy.ca.gov/title24/coolroofs/.

[23] Resources and information available through Green Highway Partnership http://www.greenhighways.org/dev/Template.cfm?FrontID=5105.

[24] Resources and information available through Concrete Network http://www.concretenetwork.com/.

[25] Resources and information available through Warm Mix Asphalt Group http://www.warmmixasphalt.org/.

[26] The University of California, Berkeley consortium on Green Building and Design has developed an Excel based tool for estimating the environmental and economic effect of pavements and roads called the PaLATE model. The model and supporting information can be found at http://www.ce.berkeley.edu/~horvath/palate.html.

[27] Resources and information available through Green Highway Partnership and the Concrete network http://www.greenhighways.org/dev/Template.cfm?FrontID=5105. http://www.concretenetwork.com/.

[28] Resources for conducting bike and pedestrian audits can be found at the Federal Highway Administration's Bicycle and Pedestrian Safety website (http://safety.fhwa.dot.gov/ped_bike/) as well as through programs such as Safe Routes to Schools Program (www.saferoutesinfo.org) or the Pedestrian and Bicycle Information Center (www.pedbikeinfo.org).

[29] A list of readily available tools for estimating GHG emissions in included in the Greenhouse Gas Emissions Memorandum.

[30] The California Urban Water Conservation Council (CUWCC) can assist its member organizations with performing a water audit, setting consumption reduction targets, and developing a plan to reduce overall water use.

[31] Information and Resources available at http://www.epa.gov/watersense/.

[32] The term recycled water usually refers to water reuse on the scale of a city or county's municipal water supply. This is water that is reclaimed at a City's wastewater or sewage treatment facility, is treated and then redistributed by the water provider for appropriate uses. Availability will vary from location to location. Additional information is available through the California Department of Water Resources (http://www.water.ca.gov/recycling/), the California Department of Public Health (http://www.cdph.ca.gov/healthinfo/environhealth/water/Pages/Waterrecycling.aspx), and the local water provider.

[33] http://www.epa.gov/region09/water/recycling/index.html

[34] Greywater is water recovered from washroom sinks, washing machines, showers or bathtubs at a single location, undergoes some minimal level of on-site treatment and can then be used at that same location for select tasks that do not require potable water such as lawn or plant watering. Greywater does not include

toilet water, kitchen sink water, water used to launder diapers or dishwashers. Information available at Ecology Center http://www.ecologycenter.org/factsheets/greywater.html.

[35] The California Department of Water Resources. 1995. *The Graywater Guide".* Available at: http://www.water.ca.gov/wateruseefficiency/docs/graywater_guide_book.pdf.

[36] Resources available through concrete Network and Pervious Pavements Organization http://www.concretenetwork.com/pervious/environ_benefits.html, http://www.perviouspavement.org/.